Amendments to the Claims:

Please cancel claims 1 and 6-8 and amend claims 2-4 and 9.

The following listing of claims will replace all prior versions and listings of claims in the application:

1. (canceled).

2. (currently amended) An apparatus ~~as in claim 1 wherein the input that receives a digital signal to be transmitted comprises~~ for transmitting data on a fiber channel, the apparatus comprising:

a Gigabit Media Independent Interface (GMII) that receives a digital signal to be transmitted;

a plurality of programmable modulators each configured to accept a portion of the digital signal to be transmitted, and to modulate the portion of the digital signal accepted;

a plurality of mixers, each mixer coupled to the output of one of the programmable modulators to accept a modulated signal and mix it with a mixer frequency;

a plurality of bandpass filters, that filter the output of the mixers; and

a summation unit that combines the outputs of the bandpass filters into a single signal.

3. (currently amended) An apparatus ~~as in claim 1~~ for transmitting data on a fiber channel, the apparatus comprising:

an input that receives a digital signal to be transmitted;

a plurality of programmable modulators each configured to accept a portion of the digital signal to be transmitted, and to modulate the portion of the digital signal accepted;

a plurality of mixers, each mixer coupled to the output of one of the programmable modulators to accept a modulated signal and mix it with a mixer frequency;

a plurality of bandpass filters, that filter the output of the mixers; and

a summation unit that combines the outputs of the bandpass filters into a single signal;

wherein the input that receives a digital signal to be transmitted further comprises a control input that controls the number of bits of the digital signal to be transmitted which are provided to each modulator.

4. (currently amended) An apparatus ~~as in claim 1 wherein~~ for transmitting data on a fiber channel, the apparatus comprising:

an input that receives a digital signal to be transmitted;

a plurality of programmable modulators each configured to accept a portion of the digital signal to be transmitted, and to modulate the portion of the digital signal accepted, each programmable modulator ~~further comprises~~ comprising a control input that controls the type of modulation that is applied to the portion of the digital signal that is accepted by each modulation;

a plurality of mixers, each mixer coupled to the output of one of the programmable modulators to accept a modulated signal and mix it with a mixer frequency;

a plurality of bandpass filters, that filter the output of the mixers; and

a summation unit that combines the outputs of the bandpass filters into a single signal.

5. (previously presented) An apparatus as in claim 4 wherein the type of modulation selected consists essentially of binary phase shift keying (BPSK), quadrature phase shift keying (QPSK), and quadrature amplitude modulation (QAM).

6-8. (canceled).

9. (currently amended) An apparatus ~~as in claim 8~~ for transmitting data on a fiber channel, the apparatus comprising:

an input that receives a digital signal to be transmitted;

a plurality of programmable modulators each configured to accept a portion of the digital signal to be transmitted, and to modulate the portion of the digital signal accepted;

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a plurality of mixers, each mixer coupled to the output of one of the programmable modulators to accept a modulated signal and mix it with a mixer frequency;

a plurality of bandpass filters, that filter the output of the mixers; and

a summation unit that combines the outputs of the bandpass filters into a single signal;

wherein the apparatus is integrated within ~~the single integrated circuit is~~ a complementary Metal Oxide Semiconductor (CMOS) integrated circuit.

10-39. (canceled)

40. (previously presented)   A method of transmitting data on a fiber channel, the method comprising:

receiving a digital signal to be transmitted;

modulating a plurality of portions of the digital signal to be transmitted to produce a plurality of modulated signals;

adaptively controlling the type of modulation that is applied to each portion of the digital signal;

mixing each of the modulated signals with a mixer frequency to produce a plurality of mixed signals;

filtering each of the mixed signals with a bandpass filter to produce a plurality of filtered signals; and

combining the filtered signals into a single signal.

41. (previously presented) The method of claim 40 wherein the digital signal to be transmitted is received by a Gigabit Media Independent Interface (GMII).

42. (previously presented) The method of claim 40 further comprising controlling the number of bits that comprise each portion of the digital signal.

43. (canceled)

44. (previously presented) The method of claim 40 wherein modulating the plurality of portions of the digital signal comprises performing binary phase shift keying (BPSK), quadrature phase shift keying (QPSK) and quadrature amplitude modulation (QAM).

45. (previously presented) The method of claim 40 wherein the mixer frequency is programmable.

46. (previously presented) The method of claim 40 wherein each bandpass filter has a programmable bandpass.

47. (currently amended) An apparatus as in claim 1 further for transmitting data on a fiber channel, the apparatus comprising:
        an input that receives a digital signal to be transmitted;
        a plurality of programmable modulators each configured to accept a portion of the digital signal to be transmitted, and to modulate the portion of the digital signal accepted;
        a plurality of mixers, each mixer coupled to the output of one of the programmable modulators to accept a modulated signal and mix it with a mixer frequency;
        a plurality of bandpass filters, that filter the output of the mixers;
        a summation unit that combines the outputs of the bandpass filters into a single signal; and
        a plurality of convolutional coders disposed between the input and at least one of the plurality of programmable modulators and accepting a portion of the signal to be transmitted from the input and performing a convolutional coding on the accepted signal thereby providing a convolutionally coded output to the at least one of the plurality of programmable modulators.